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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In the application of

KIRT E. WHITESIDE

Serial No. 09/780,603

Filed October 29, 2002

For MECHANIC'S CREEPER

Group Art Unit 3618

Jeffrey J. Restifo, Examiner

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Respectfully Submitted,

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January 31, 2005

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APPEAL BRIEF

Commissioner for Patents
P.O. Box 1450
Alexandria, VA. 22313-1450

Dear Sir:

This is an appeal to the Board of Patent Appeals from the final rejection in the Office Action mailed September 7, 2004. The Notice of Appeal was received by the Office on December 2, 2004. The present appeal is of claims 1-5 of the subject application. This Appeal Brief is enclosed in triplicate.

I. Real Party in Interest

The owner of the present patent application is Whiteside Mfg. Co. The assignment was recorded in the Assignment Division of the United States Patent and Trademark Office on March 10, 2000, and was recorded in the records of the PTO at Reel/Frame 010664/0459. Whiteside Mfg. Co. is incorporated under the laws of the State of Ohio, U.S.A., and has a principal place of business at 309 Hayes Street, Delaware, Ohio 43015.

II. Related Appeals and Inferences

An appeal of a final rejection of the present application was filed on December 8, 2003. In response to that appeal, the Examiner reopened prosecution from which the present appeal follows. In addition, an appeal of a final rejection in the parent application of the present application, U.S. Serial No.

09/523,469, was filed on October 24, 2002. That appeal was assigned Appeal No. 2003-1649, and all issues were ultimately resolved in favor of the Appellant.

III. Status of Claims

The present application, U.S. Serial No. 09/780,603, was originally filed on February 12, 2001, as a continuation-in-part of U.S. Serial No. 09/523,469, which was filed on March 10, 2000. The application was originally filed with nineteen (19) claims. Claims 7-13 and 16-19 have been allowed, claims 6, 14 and 15 have been cancelled, and claims 1-5 are the subject of the this appeal.

IV. Status of the Amendments

The amendments presented in this case have all been entered.

V. Summary of the Claimed Subject Matter

The present invention as claimed in claims 1-5 is directed generally to an improved mechanic's creeper employing caster assemblies with wheels having wheel bodies with hemispherical or semi-elliptical cross sections, and hardnesses such that, when used on a work surface, the shapes of the wheel bodies remain substantially unchanged.

Typically, mechanic's creepers have employed caster assemblies with wheels having a flat or rectangular cross-section. The shape of the flat or rectangular cross-sectioned wheels serves to maximize the contact area between the wheels and the working surface to minimize any instability in the connection between the caster assemblies and side rails of the typical mechanic's creeper. However, significant friction is generated when using flat or rectangular cross-sectioned wheels. Such friction opposes both the revolution of the flat or rectangular cross-sectioned wheels and the rotation of such wheels about a vertical axis. For example, the friction increases the required turning radius of the typical mechanic's creeper by preventing the flat or rectangular cross-sectioned wheels from rotating quickly about the above-described vertical axis. The effects of such friction are even more readily apparent in normal use when the caster assemblies are subject to the weight of the user.

To reduce the above-discussed friction generated by the wheels of the caster assemblies, the present invention contemplates providing wheels with a shape which limits contact with the working surface. When prior art caster assemblies have been provided with wheels having an initial shape (i.e. rounded edges) that would appear to limit contact with the working surface, these wheels are formed of materials that substantially deform during use, and the contact area ultimately resembles that of the above-described flat or rectangular cross-sectioned wheels. Consequently, when these deformable rounded-edge wheels are used with typical mechanic's creepers, the above-discussed problems remain. That is, like typical mechanic's creepers using flat or rectangular cross-sectioned wheels, the deformable rounded-edge wheels, when used with mechanic's creepers, deform to resemble the flat or rectangular cross-sectioned wheels, and serve to maximize the contact area with the working surface. Such contact maximizes the amount of friction between the deformable rounded-edge wheels and the working surface.

The present invention relates to an improved mechanic's creeper that solves the above-discussed problems associated with typical mechanic's creepers. The improved mechanic's creeper is generally indicated by the numeral 100, and includes padding 12 and, optionally, a headrest 13 positioned between opposed side rails 14/114 on a plurality of crossbars 15. The side rails 14/114 are hollow and include a generally horizontal bottom surface 16 and opposed top surface 17. The bottom surface 16 lies substantially parallel to the working surface.

Various caster assemblies 120 can be used to support the side rails 14/114, and provide for mobility of the creeper 100. The caster assemblies 120 are connected to the horizontal bottom surfaces 16 of side rails 14/114. The caster assemblies 120 each include a wheel assembly 122 which rotates about a vertical axis on rolling elements 124 that are retained within the race of a bearing bracket 128. The rolling elements 124 are maintained between the bearing bracket 128 and a horn 136 of the wheel assembly 122 by a kingpin (or bolt and nut) 130. As such, the kingpin 130 is used to "clamp" various elements of the caster assemblies 120 together, thereby allowing the horn 136 (and the rest of the wheel assembly 122) to rotate about the vertical axis.

The wheel assembly 122 includes a wheel 140 carried between the sides of the horn 136 by an axle 138. The axle 138 allows the wheel 140 to revolve on a horizontal axis. Together, the rotation of the horn 136 (and the rest of the wheel assembly 122) about the vertical axis, and the revolution of the wheel 140 on the horizontal axis defined by the axle 138, provides for the movement of the creeper 100 in any direction on the working surface.

The wheel 140 includes a wheel body 142 disposed around a hub 144. The hub 144 has an axial bore 146 therethrough for receiving the above-discussed axle 138. The hub 144 includes an outer rim 148, an inner rim 150, and radial supports 152 disposed therebetween. The inner rim 150 is distanced from the axial bore 146 by a bearing 154. The bearing 154 can be a ball bearing, or can be made of materials such as polyurethane, acetyl resin, polyolefin, polypropylene and nylon.

The wheel body 142 has a rounded radial surface at numeral 160 which reduces the contact area between the wheel 140 and the working surface. The rounded radial surface 160 is provided by forming wheel body 142 with transitions 162 extending from side walls 164 of hub 144 to the apex of the radial surface 160. In their most basic design, the transitions 162 extend to form a wheel body 142 of having a hemispherical or semi-elliptical cross section. In such a design, the area of contact between the radial surface 160 and the floor extends along a width well short of the maximum width of the wheel body 142, generally defined by the distance between the side walls 164. However, as discussed hereinbelow, the area of contact between the radial surface 160 and the floor necessarily depends on the hardness of the material from which the wheel body 142 is formed.

The wheel body 142 can be formed of materials including polymeric materials such as polyurethane, thermoplastic rubber, polyolefin, polypropylene, monoprene, and the like. The hardness of the wheel body 142 generally ranges from about 65 to about 85 on the Shore durometer hardness type D scale. Use of such materials allows the wheel body 142 to maintain its above-discussed hemispherical or semi-elliptical cross section when in contact with the working surface.

Because the contact area between the wheel 140 and working surface is reduced, the frictional forces opposing the rotation of the wheel assembly 122 and the frictional forces opposing the revolution of the wheels 140 are reduced. In fact, due to the hardness of the materials used to form the wheel body 142, the width of the contact between the radial surface 160 and the working surface is limited from about 50 to about 75 percent of the maximum width of the wheel body 142. Therefore, because the shape of the wheel body 142 limits the contact area, and, therefore, reduces the amount of friction generated by the wheel bodies 142 on the working surface, the required turning radius of the mechanic's creeper 100 can be decreased. Consequently, the mechanic's creeper 100 can turn with less force exerted by a user.

As a result of the above discussion, it is apparent that the instant invention solves the problems inherent with typical mechanic's creepers. As claimed in claim 1, a mechanic's creeper is provided wherein the caster assemblies include wheels having wheel bodies with hemispherical or a semi-elliptical cross sections. Furthermore, a mechanic's creeper is provided where the area of contact between the radial surface of the wheel body and the working surface is limited, and the wheel body has a hardness allowing the shape of the wheel body to remain substantially unchanged during normal use.

VI. Grounds of Rejection to be Reviewed on Appeal

The first issue presented in this Appeal is whether claims 1-3 are properly rejected under 35 U.S.C. § 103 as being obvious in light of the Miles et al. U.S. Patent No. 5,892,062 (hereinafter "Miles") in view of Bonzer et al. U.S. Patent No. 4,559,699 (hereinafter "Bonzer") and Block U.S. Patent No. 4,034,434 (hereinafter "Block"). The second issue presented in this Appeal is whether claims 4 and 5 are properly rejected under 35 U.S.C. § 103 as being obvious in light of Miles and Gruber U.S. Patent No. 3,604,756 (hereinafter "Gruber"), "as applied to claim 3," in view of Doyle et al. U.S. Patent No. 4,707,880 (hereinafter "Doyle"). However, the second issue is not fully understood by the Appellant, because, contrary to the Examiner's assertions, Gruber was not cited against claim 3. Therefore, because the confusion concerning the references applied to claims 4 and 5, arguments will, when

necessary, be presented countering rejections of claims 4 and 5 based on Miles, Gruber, and Doyle, and based on Miles, Bonzer, Block, and Doyle.

VII. Argument.

As discussed hereinabove, the Examiner has rejected independent claim 1 as obvious based on a combination of Miles, Bonzer, and Block. According to the Examiner, Miles discloses "a creeper 1 comprising opposed side rails 4-7, a pad 18-20 between said side rails, and a plurality of casters 8-11 attached to a planar bottom surface of said side rails and rotable about [a] vertical axis located within the profile of the side rails." The Examiner indicates that Miles does not disclose the caster wheel as having a hemispherical or semi-elliptical cross-section, but that Bonzer discloses a caster with a wheel body 18 having a semi-elliptical cross-section. Moreover, the Examiner indicates that neither Miles nor Bonzer disclose the wheel body as having a hardness from about 65 to about 85 Shore D Durometer, but that Block discloses the wheel 66 composed of a material with a hardness of 65/75 Shore D Durometer.

The Appellant not only disagrees with the rejection of independent claim 1 based on the above-discussed references, but also maintains that the Examiner has not established a prima facie case of obviousness. "To support the conclusion that the claimed invention is directed to obvious subject matter, either the references must expressly or impliedly suggest the claimed invention or the examiner must present a convincing line of reasoning as to why art is in would've found the claimed invention to be obvious in light of the teachings of the references." *Ex parte Clapp*, 227 USPQ 972, 973 (Bd. Pat. App. & Inter. 1985). The combination of Miles, Bonzer, and Block does not teach wheels having a wheel body with a hemispherical or semi-elliptical cross-section with a hardness ranging from about 65 to 85 on the Shore D durometer hardness type D scale. In fact, the combination of Miles, Bonzer, and Block teaches away from the Appellant's invention as claimed in claim 1.

The apparatus resulting from the combination of Miles, Bonzer, and Block would include the casters disclosed in Bonzer attached to the side rails disclosed in Miles. But, Bonzer teaches that the caster wheels should be substantially deformable to maintain contact with the working surface, with the

hardness of the material forming the tire-like portion (69) ranging from 50 to 70 on the Shore durometer type A scale (Column 5, Lines 24-25). In fact, according to Column 3, Lines 48-52, the tire-like portion (69) is "molded of a resiliently deformably elastomeric material," and is "bonded annularly to a circular core 80 of rigid material." Therefore, although the tire-like portion (69) is shown in Figs. 1-4 of Bonzer with an initial shape, the tire-like portion (69) when used on the above-discussed apparatus is meant to deform under a user's weight.

Furthermore, Block does not actually disclose a wheel entirely composed of the material having a hardness of 65/75 Shore D Durometer. Instead, Block discloses a roller segment (42) having an inner core (66) formed from a rigid vinyl material having a Shore D Durometer of 65/75 and an outer core (64) formed from a softer vinyl material having a Shore A Durometer of 40/50 (Column 3, Lines 64-67). According to Column 3, Lines 44-47, the outer core (66) is made of a softer material that is in contact with the work surface on which the roller segment (42) is placed. Thus, the inner core (66) does not contact the surface on which the roller segment (42) is placed because it is surrounded by the outer core (64). Therefore, Block serves only to reinforce the teachings of Bonzer. As such, the combination of Miles, Bonzer, and Block teaches, if anything, that the material forming the outer surface of a wheel must be relatively soft compared to the core of the wheel.

When a user is positioned on a apparatus resulting from the combination of Miles, Bonzer, and Block, the user's weight will cause the section of the tire-like portion (69) in contact with the working surface to deform. Such deformation will substantially flatten the section of the tire-like portion (69). In fact, the section of the tire-like portion (69) in contact with the working surface would resemble that of a flat or rectangular cross-sectioned wheel. Such contact would maximize the amount of friction between the wheels and working surface, and limit the mobility of the apparatus. This is exactly what the present invention is attempting to avoid. That is, unlike the creeper of the instant invention, the apparatus resulting from the combination of Miles, Bonzer, and Block does not reduce the amount of friction generated by the wheels on the working surface so that the apparatus can turn with less force exerted by a user.

As discussed hereinabove, the present invention was designed to avoid such friction. For example, as claimed in claim 1, the wheel bodies 142 have a hardness such that, during use, the hemispherical or semi-elliptical shape of the wheel bodies 142 remains substantially unchanged. As such, the wheels of the instant invention maximize the mobility of the creeper by minimizing the friction between the wheels and working surface. Therefore, unlike the mechanic's creeper 100 of the instant invention, the apparatus resulting from the combination of Miles, Bonzer, and Block has a large turning radius because of friction generated by the tire-like portion (69) opposes both the revolution of the wheels, and rotation of such wheels about the vertical axis. Consequently, because Bonzer requires the use of deformable caster wheels, and Block reinforces the necessity of having the deformable portion of a wheel in contact with the work surface, substituting substantially non-deformable wheels, like those recited in claim 1, is not suggested by the teachings of Miles, Bonzer, Block, or combinations thereof.

Because independent claim 1 is patentably distinct from the applied prior art, the dependant claims 2-5, depending therefrom, are also believed to be allowable, rendering the remaining issues moot. Nevertheless, at least some of the dependent claims also include independently patent distinguishable subject matter worthy of a brief discussion herein. For example, claim 5 recites that the wheel body of claim 1 is formed from a material selected from a group including polyurethane, thermoplastic rubber, polyolefin, polypropylene and monoprene.

As discussed hereinabove, there is some confusion, however, regarding whether claims 4 and 5 were rejected based on Miles, Gruber, and Doyle or were rejected based on Miles, Bonzer, Block, and Doyle. Either way, the Appellant disagrees with such rejections.

For example, the combination of Miles, Bonzer, Block, and Doyle results in an apparatus, as discussed hereinabove, including the casters disclosed in Bonzer attached to the side rails disclosed in Miles. The casters wheels would, according to Bonzer, be substantially deformable to maintain contact with the working surface, and, would, according to Block, be formed from a rigid inner core and a soft outer core. At Column 3, Lines 26-29, Doyle

discloses that the wheel (14) thereof "is rotatably mounted on the axle 12 and includes a metal hub 28 with an outer thread 29 of a somewhat resilient plastic material, such as polyurethane, molded directed to the periphery thereof." However, in order to reconcile the combination of Doyle with Miles, Bonzer, and Block, the resilient plastic outer thread (29) would be used as the inner core of the caster wheel. Otherwise, the teachings of Bonzer and Block, which specify a deformable outer wheel material, would contradict the teachings of Doyle.

Thus, claim 5 is not obvious in view of the combination of Doyle, Miles, Bonzer, and Block. Claim 5 specifies that the wheel body of claim 1, having a hardness of about 65 to 85 on the Shore D Durometer scale, "is formed from material selected from the group consisting of polyurethane, thermoplastic rubber, polyolefin, polypropylene and monoprene." However, because the outer thread (29) of Doyle would be used as the inner core, the apparatus resulting from the combination of Doyle, Miles, Bonzer, and Block does not include a wheel body formed from polyurethane, thermoplastic rubber, polyolefin, polypropylene, or monoprene, which, when in contact with a working surface, has a shape that remains substantially unchanged.

Furthermore, the combination of Miles, Gruber, and Doyle would not even be applicable to claim 5, because claim 1 (on which claim 5 depends) is not obvious in light of any combination of these references. For example, the combination of Miles and Gruber results in an apparatus formed by interchanging the wheels of the casters disclosed in Miles with the wheels of Gruber. Furthermore, the wheels of apparatus resulting from the combination of Miles and Gruber could be further modified by Doyle, and could result in the wheels being formed of a somewhat resilient plastic material, such as polyurethane. However, unlike claim 1, neither Miles, Gruber, nor Doyle disclose a wheel body having a "hemisphereical or semi-elliptical cross section, and with a hardness such that, when used on a work surface, the shape of the wheel body remains substantially unchanged." In fact, the tire (22) of Gruber, on which the above-discussed combination relies, includes a substantially flat rolling surface extending between contoured side walls. The substantially flat rolling surface has the same area of contact as the above-discussed flat or rectangular cross-sectioned wheels. As such, unlike the present invention which

limits the area of contact with the working surface, the substantially flat rolling surface of the apparatus formed by the combination of Miles, Gruber, and Doyle serves to maximize the contact area with the working surface. As such, because the combination of Miles, Gruber, and Doyle does not include a wheel body having a hemispherical or semi-elliptical cross section, claim 1, as well as claim 5 depending therefrom, can be patentably distinguished from this combination of references.

In conclusion, the combinations of the cited references discussed hereinabove only result in a mechanic's creeper with the same problems the present invention was designed to solve. As a result, independent claim 1, and claims 2-5 depending therefrom, are patentable over this prior art, necessitating a reversal of the Examiner by this Board.

VIII. Claims Appendix.

1. A creeper comprising opposed side rails having a planar bottom surface; a pad supported between said side rails; and a plurality of caster assemblies rotatable on a vertical axis relative to said side rails and supporting said side rails; each of said plurality of caster assemblies attached to said planar bottom surface and fully positioned under and within the profile of said side rails, and including a wheel having a wheel body with a hemispherical or semi-elliptical cross section, and with a hardness such that, when used on a work surface, the shape of said wheel body remains substantially unchanged, said hardness of said wheel body ranging from about 65 to 85 on the Shore D durometer hardness type D scale.

2. A creeper according to claim 1 wherein each said wheel of said plurality of caster assemblies further comprises a hub having an axial bore, an inner rim proximate said axial bore, and an outer rim distanced from said inner rim by radial supports.

3. A creeper according to claim 2 wherein said axial bore is defined by a bearing.

4. A creeper according to claim 3 wherein said bearing is made of a material selected from the group consisting of polyurethane, acetyl resin, polyolefin, polypropylene and nylon.

5. A creeper according to claim 1 wherein said wheel body is formed from material selected from the group consisting of polyurethane, thermoplastic rubber, polyolefin, polypropylene and monoprene.

6. Canceled.

7. A creeper comprising opposed side rails; a pad supported between said side rails; said side rails having a top and bottom surface, said top surface tapering toward said bottom surface to define a decreased cross section of said side rails, the decreased cross section of said side rails being positioned adjacent said pad; and a plurality of caster assemblies attached to and supporting said side rails; each of said plurality of caster assemblies including a wheel including a wheel body extending, in hemispherical or semi-elliptical cross section, from a hub and having a hardness such that, when used on a work surface, the shape of said wheel body remains substantially unchanged, and a top bearing bracket having a top race, said top bearing bracket being attached to one of said side rails such that said top race of said top bearing bracket lies wholly within the vertical profile of said side rail.

8. A creeper according to claim 7, wherein said hub includes an axial bore, an inner rim proximate said axial bore, and an outer rim distanced from said inner rim by radial supports.

9. A creeper according to claim 8 wherein said axial bore is defined by a bearing.

10. A creeper according to claim 9 wherein said bearing is made of a material selected from the group consisting of polyurethane, acetyl resin, polyolefin, polypropylene and nylon.

11. A creeper according to claim 7 wherein said wheel body is formed from material selected from the group consisting of polyurethane, thermoplastic rubber, polyolefin, polypropylene and monoprene.

12. A creeper according to claim 11 wherein said wheel body has a hardness of from about 65 to about 85 on the Shore durometer hardness type D scale.

13. A creeper according to claim 7 wherein the width of the surface contact between said radial surface and a work surface upon which the creeper is placed is from about 50 to about 75 percent of the maximum width of said wheel body.

14. Canceled.

15. Canceled.

16. A creeper according to claim 7 wherein said plurality of caster assemblies are attached to said side rails without creating a protrusion on said top surface of said side rails.

17. A creeper according to claim 16 wherein said caster assemblies each include a bottom bearing bracket having a bottom race; a wheel assembly carrying said wheel and connected to said caster assembly between said top and bottom bearing brackets; top rolling elements retained within said top race between said top bearing bracket and a portion of said wheel assembly; and bottom rolling elements retained within said bottom race between said bottom bearing bracket and a portion of said wheel assembly.

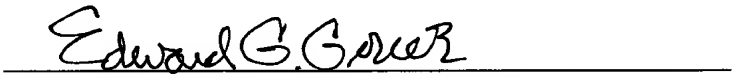
18. A creeper according to claim 17 wherein each of said caster assemblies further include a kingpin, said bottom bearing bracket and said wheel assembly being held in operative position by said kingpin.

19. A creeper according to claim 18 wherein said top bearing bracket is secured to said bottom surface of said side rails by rivet nuts.

IX. Evidence Appendix

N/A

Respectfully submitted,



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January 30, 2005